Self-regulated learning among university students: Role of self-determination related needs and academic locus of control

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ABSTRACT

According to self-determination theory, the satisfaction of self-determination related needs (autonomy, competence, and relatedness) are necessary for engaging in self-regulated learning among university students. Furthermore, within self-regulated learning, the role of academic locus of control needs to be explored. This study was carried out to explore the role of academic locus of control learning as an explanatory mechanism for relationship between self-determination based needs and self-regulated learning. Basic Psychological Needs Scale was used to measure self-determination based needs, Academic Locus of Control Scale, and a subscale Self-regulation Learning of Motivated Strategies for Learning Questionnaire were used. Various statistical analyses were run to test the hypotheses. Testable hypotheses were made based upon the past literature and results indicated that all hypotheses were confirmed. Self-determination related needs (autonomy, competence, and relatedness) were positively related with self-regulated learning and internal locus of control. The strongest predictors were autonomy and academic locus of control in predicting self-regulated learning. Academic locus of control played a mediating role between self-determination based needs and self-regulated learning. Age and gender played a moderating role in relationship of self-determination related needs and self-regulated learning. The findings can lead to better understanding of role of satisfaction of self-determination related needs and academic locus of control in self-regulated learning among adolescents.

Key words: Academic locus, satisfaction, self-determination related needs and self-regulated learning.

INTRODUCTION

Self-determination is an emerging psychological construct, defined as volitional actions taken by people based on their own desires, and their self-determined related behavior depends on conscious awareness, planning, and willingness to make decision (Nota et al., 2011). Self-determination theory (SDT) evaluates the internal motivation and discovers three main internal psychological needs that engage in self-determination: (a) Need for autonomy, (b) need for competence, and (c) need for relatedness (Deci et al., 1995). Competence refers to the knowledge of a sense of efficacy and abilities to interacting in one’s environment (Bao and Lam, 2008). It is like self-efficacy, which is an inner belief in one’s own abilities to complete a task (Mece et al., 2006). Relatedness satisfaction is defined as the experience of care, love, and belongingness by significant people in one’s life. While, autonomy is experiencing self-enrollment and personal-choice in performing any task (Bao and Lam, 2008). In this study, self-determination is measured by the satisfaction of three basic psychological needs: autonomy, competence and relatedness as defined by self-determination theory.

Self-determination theory (SDT) is based on six mini-
theories, each theory was developed to enlighten the factors of human motivationally functioning that reflects the human innate and active actions, and their wellbeing. The current study is following two mini theories from these six basic psychological needs theory and causality orientations theory. Basic psychological needs theory describes the role of above mentioned three psychological needs in human growth and development of personality. This theory focuses on how the satisfaction of these needs has effect on human functioning and growth and which factors contribute to the satisfaction and frustration of these psychological needs. According to causality orientations theory, satisfaction of these needs, (need for competence, need of autonomy, and need for relatedness) is related with internal locus of causality and frustration of these needs is associated with external locus of causality. This theory also explained that self-regulated learning, autonomy, self-acceptance, academic success, task related performance, and goal achievement in educational domain is positively correlated with internal locus of causality.

Theoretical framework based upon two models aforementioned guided in selecting variables of the current study, that is role of self-determination based needs (autonomy, competence, and relatedness), predict self-regulated learning with academic locus of control as mediator which is shown in Figure 1.

Zimmerman and Schunk (1989) defined self-regulated learning as a self-directed opinion, actions, and feelings which are analytically oriented toward accomplishment of student’s own goals. It is just like students’ becoming “masters of their own learning” (p. 4). Self-regulated learners logically operate their learning environment and sources to face the challenges (Kolovelonis et al., 2011). A study found that mostly self-regulated learners seek additional suggestions and information and follow positive and effective learning strategies as compared with externally regulated learners (Clarebout et al., 2010).

Locus of control is defined as “the aspects of an individual that contribute to his/her failures and successes” (Forte, 2005: 65). There are two types of locus of control: Internal represents having belief about outcomes of one’s actions as controlled by one’s own decisions and efforts. External locus of control is having belief that outcomes of behaviours are under external control that is environment or occur by chance (fate, luck, and so on) (Jatkevicius, 2010: 78). A study showed that locus of control is predicted by self-determination (Reeve et al., 2003). Most important principle of SDT is that the fulfillment of need of autonomy, competence, and relatedness predicts internalization of behavior and internal locus of causality (Ryan and Deci, 2002), which is also supported in research studies (see e.g., Tian et al., 2014). The students who have effective learning skills tended to have internal locus of control as compared with those students who have less effective learning abilities (Moore, 2007). Fazey and Fazey (2001) found that high scores on autonomy are positively related to competency, internal locus of control, and internal motivation. They all are also predictors of academic achievement. Ziegler et al. (2012) explained that people who make more accurate attributions toward their success and failure, they are more likely to engage in self-regulated learning. A recent study in Pakistan by Zaidi and Mohsin (2013) showed that internal locus of control has been found in male students and external locus of control found in female students.

Pintrich (2000) propose a general structure for self-regulated learning having four components namely forethought, monitoring, control, and reflection. Self-regulated learning enhances the students’ learning skills, academic performance, and evaluation of academic improvement (Wolters and Taylor, 2012); same was the finding in Pakistan (Harris et al., 2005). Gender differences on self-regulated learning strategies were found to be nonsignificant (Fazal et al., 2012). However, a recent study reported that male students have high level of self-regulated learning as compared with female students (Ahmad et al., 2012; Munir, 2016).

Wood (2016) applied the principles of SDT within classroom setting and recommended that student’s motivation to involve in learning tasks and engagement in classroom are predicted by the satisfaction of need for autonomy, competence, and relatedness. Shaheen et al. (2003) found that when the behavior is admitted and directed by self (that is, internally motivated), autonomous regulation is promoted. In educational domain, research findings showed that there is positive relationship between self-regulated learning strategies, educational outcomes, and satisfaction of basic psychological needs (e.g., Longo et al., 2016). Ahmad et al. (2012) found that school adjustment and healthy child-teacher interaction are positively correlated with satisfaction of need reported by children.

Many researches explored the proposed relationship in different ways in other cultures, but none studied in Pakistani context. The present research was aimed at working with a sample of adult university students. In students’ personal life, educational life, and career, university level education plays a very significant role. They face many challenges on daily basis. During university time, individuals tend to interact with environment and make many new relations on the basis of daily interaction (Almarabeh et al., 2016). Previous research supports only the relationship of autonomy and competence with self-regulation (Doyal and Gough, 1991; Knee and Hodgins, 2002; Wolters and Taylor, 2011), but did not emphasized the association of relatedness needs with self-regulated learning. Since Pakistan is a collectivistic culture, therefore, social relatedness seems important in this culture for achieving goals in academic setting. Hence, the aim of the present study was to explore the role of relatedness along other needs (autonomy and competence) and academic locus of control in self-regulated learning among Pakistani
Hypotheses

Following hypotheses were proposed on the basis of literature:

H1. There is positive association among self-determination needs (autonomy, competence, relatedness) and self-regulated learning.
H2. External locus of control is negatively associated with self-regulated learning.
H3. There is negative relationship between external locus of control and self-determination related needs (autonomy, competence, relatedness).

METHODS

Participants

The data of the study were collected using convenient sampling technique from university students (N = 356) with age range of 17 to 35 years including 203 male and 153 female students with educational level (BS = 140 and MSc = 216). A total of 231 students were residing in hostel and remaining were day scholars. As per the discipline, 133(37.3%) were from social sciences, 153(43%) were from natural sciences, and 70(19.7%) were from biological sciences.

Instruments

Basic psychological needs scale (BPNS): General scale of BPNS was used that had 21 items concerning the three needs: Autonomy (7 item), Competence (6 items), and Relatedness (8 items). Nine items were reverse scored being negatively worded. Participants were instructed to respond on a scale of 1 (Not at all true) to 7 (Very true) showing how truly they feel for each statement and high scores indicated the high level of respective need satisfaction. Internal consistency for the subscales ranged from acceptable to good (Autonomy α = 0.65; Competence α = 0.72; Relatedness α = 0.82).

Trice academic locus of control scale: It was developed by Trice (1985) to measure the internal and external academic locus of control. This scale measured the locus of control in academic settings. It consisted of 28 items having dichotomous response categories (true or false). The range of scores was 0-28. Low scores indicated internal locus of control (0-14), while high score indicated external locus of control (15-28). Some of the items are “College grades most often reflect the effort you put into classes”; “Professors sometimes make an early impression of you and then no matter what you do, you cannot change that impression”, etc. The test- retest reliability for the student sample was 0.90 and Kuder Richardson internal consistency was 0.50 (Trice, 1985).

Motivated strategies for learning questionnaire (MSLQ): It was a self-report measure developed by Pintrich et al. (1991) to evaluate the student's different level of using learning strategies and students’ motivational orientations toward course. In this study, only component used was Self-
regulation Scale. It included 12 items concerning student's self-management strategies for learning. Students responded on a seven point Likert scale from 1 = not at all true of me to 7 = very true of me. Two items were reversed. Sore range of Self-regulated Learning scale is 12 to 84. Alpha reliability of this scale was 0.79.

Procedure

Firstly, permission from the authors of scales for the study was acquired. Data were collected from the different departments (natural, social, and biological) of Quaid-i-Azam University. Permission to collect data was acquired through administration of the departments/institutes. Respondents were verbally informed about the purpose and nature of the study. Participants were assured anonymity and confidentiality regarding the information, which they would provide on booklet of questionnaire. They were told that there was no right and wrong answer on these questionnaires and no time limit was given to the participants. Order of the measure in booklet was changed randomly to control order effect on responses of the participants that could affect findings of the study. Written informed consent form which was attached at the front of all questionnaires was signed by the participants to ensure the voluntary participation. Participants were given right to leave the study any time with no cost and no harm, if they desired so. However, they were requested to respond as honestly as possible to the statements of the questionnaire representing their true feelings and personal experiences. In the end, respondents were acknowledged for their cooperation. After the collection of data, scoring was done according to the scoring key and analyses were done using SPSS-21.

RESULTS

The present study aims to explore the relationship between self-determination related variables (autonomy, competence and relatedness), academic locus of control, and self-regulated learning with specific aim to investigate the mediating role of locus of control and moderating role of gender. Statistical analyses were run using SPSS 21. The results are shown hereafter.

Reliabilities and correlation analyses of the measures

Cronbach’s alpha reliability coefficients were computed for every scale to measure the internal consistency to established the applicability of the scales on the sample (N = 356). Pearson Product Moment Correlation was computed to study the relationship between self-regulated learning, academic locus of control, and self-determination related needs that are autonomy, competence and relatedness (Table 1).

Table 1 shows that all scale had satisfactory reliabilities. The relationship between autonomy, competence, and relatedness and self-regulated learning was positively significant. Hence, Hypothesis 1 is confirmed. The correlation between self-regulated learning and academic locus of control was significantly negative; external locus of control increases, self-regulated learning decreases. Therefore, Hypothesis 2 is also confirmed. The relationship between autonomy, competence, and relatedness and academic locus of control was statistically significantly negative. It means that with increase in external locus of control, self-determination related needs were less satisfied or vice versa. Hence, Hypothesis 3 is also confirmed.

Mediation analyses

Mediation is a hypothesized casual chain in which one variable (academic locus of control) gets affected by a second variable (self-determination related needs that are autonomy, competence, relatedness) and in turn, affects a third variable (self-regulated learning). Mediation analysis was conducted to determine the mediating role of academic locus of control for autonomy, competence, and relatedness in predicting self-regulated learning, while age and gender were taken as control variables. Mediating role of locus of
Table 2: Mediating role of academic locus of control for autonomy in predicting self-regulated learning (N = 356).

<table>
<thead>
<tr>
<th>Variable</th>
<th>Model 1 $B$</th>
<th>Model 2 $B$</th>
<th>95%CL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>8.33</td>
<td>18.50**</td>
<td>[4.73, 32.27]</td>
</tr>
<tr>
<td>Age (control variable)</td>
<td>0.64*</td>
<td>0.67**</td>
<td>[0.14, 1.19]</td>
</tr>
<tr>
<td>Gender (control variable)</td>
<td>-1.29</td>
<td>-0.70</td>
<td>[-2.89, 1.48]</td>
</tr>
<tr>
<td>Autonomy (IV)</td>
<td>1.15***</td>
<td>0.99***</td>
<td>[0.82, 1.16]</td>
</tr>
<tr>
<td>Locus of control (mediator)</td>
<td>-0.64***</td>
<td>-0.39</td>
<td>[-0.88, -0.39]</td>
</tr>
<tr>
<td>$R^2$</td>
<td>0.41***</td>
<td>0.45***</td>
<td></td>
</tr>
<tr>
<td>$\Delta R^2$</td>
<td>0.04</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$F$</td>
<td>82.23***</td>
<td>72.33***</td>
<td></td>
</tr>
<tr>
<td>$\Delta F$</td>
<td>9.90</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note. $B =$ Un-standardized regression coefficient.
***$p < 0.001$. **$p < 0.01$. *$p < 0.05$.

control was confirmed using sobel t-test (Table 2 to 4). Table 2 shows that autonomy was a significant predictor.
of self-regulated learning, explaining 41% variance in Model 1 that significantly positively predicted self-regulated learning. This variance was increased to 45% in Model 2 on adding locus of control as a mediator, which indicated that indirect effect is present. Once the locus of control was entered in Model 2, it affected the autonomy’s role, but autonomy did not totally lose significance, while locus of control was significant ($B = -0.64, p < 0.001$). Sobel test ($z = 4.14, p < 0.001$) showed that the locus of control was a partial mediator for autonomy in predicting self-regulated learning. As autonomy increased, external locus of control decreased which resulted into more self-regulated learning. Indirect effect of autonomy for self-regulated learning in context of locus of control was ($\beta = 0.16$). These results confirm the fourth hypothesis of this study in term of autonomy need.

Table 3 shows that competence was a significant predictor of self-regulated learning, explaining 39% variance in Model 1 that significantly positively predicted self-regulated learning. This variance was increased to 47% in Model 2 on adding locus of control as a mediator, which indicated that indirect effect was present. Once the academic locus of control was entered in Model 2, it effected the competence, but competence did not totally lose significant, while academic locus of control was significant ($B = -0.82, p < 0.01$). Sobel test ($z = 3.83, p < 0.001$) showed that the academic locus of control was a partial mediator for competence in predicting self-regulated learning. As competence increased, external locus of control decreased that resulted into more self-regulated learning. Indirect effect of competence for self-regulated learning in context of locus of control was ($\beta = .16$). These results confirm the fourth hypothesis of this study in term of competence need.

Table 4 shows that relatedness was a significant predictor of self-regulated learning, explaining 29% variance in Model 1 which significantly positive predicted self-regulated learning. This variance was increased to 35% in Model 2 on adding locus of control as a mediator, which indicated that indirect effect was present. Once the locus of control was entered in Model 2, it effected the relatedness role, but relatedness did not totally lose significant, while locus of control was significant ($B = -0.82, \ p < 0.01$). Sobel test ($z = 4.48, p < 0.001$) showed that the locus of control was a partial mediator for relatedness in predicting self-regulated learning. As relatedness increased, external locus of control decreased that resulted into more self-regulated learning. Indirect effect of relatedness for self-regulated learning in context of locus of control was ($\beta = 0.19$). These results confirmed the fourth hypothesis of this study in term of relatedness need.

**Moderation analyses**

To evaluate the moderating role of gender for self-determination related needs (autonomy, competence, and relatedness) in predicting self-regulated learning, while controlling the effect of age, multiple regression analysis was performed (see Table 5).

Table 5 shows non-significant main effect of gender in self-regulated learning. However, significant interaction effect showed significant moderating role of gender. In a total of 45% of the variance in self-regulated learning, interaction effect of autonomy contributed 4% of variance. Interaction effect between autonomy and gender was negative and significant ($\beta = -0.89, p < 0.01$), indicating that gender moderated the relationship of autonomy with self-regulated learning (see Figure 2 for trend in prediction). Furthermore, in 44% of the variance in self-regulated learning, interaction effect of gender with competence explained 5% of variance (see Figure 3 for trend in prediction). Interaction effect between competence and gender was negative and significant ($\beta = -1.04, p < 0.01$), which indicated that gender moderated the relationship of competence with self-regulated learning.

Furthermore, in 31% of the variance in self-regulated learning, interaction effect of gender with relatedness explained 3% of variance learning (see Figure 4 for trend in prediction). Interaction effect between relatedness and gender was negative and significant ($\beta = -0.71, p < 0.01$) which indicated that gender moderated the relationship of relatedness with self-regulated learning (Table 5). Modegraphs made to explore the nature of relationship. The moderated effect of gender in graphs is shown in Figures 2 to 4.

The modegraph of Figure 2 shows that gender had a significant interaction effect with autonomy in predicting self-regulated learning. At the point of low level of autonomy, female students already had high level of self-regulated learning as compared with male students. As autonomy increased, self-regulated learning increased in both male and female students, but this increase was more pronounced in the case of male students as shown by slope ($t = 14.81, p < 0.001$) of the modgraph, which was sharper in the case of male students as compared with female students ($t = 2.91, p < 0.001$). Fan effect was evident in the interaction, after the point of intersection, boys were scoring high on self-regulated learning than girls at a given point of autonomy.

Modegraph of Figure 3 shows that gender had a significant interaction effect with competence in predicting self-regulated learning. At the point of low level of competence, female students already had high level of self-regulated learning as compared with male students. As competence increased, self-regulated learning increased in both male and female students, but this increase was more pronounced in the case of male students as shown by slope of the Modegraph which was sharper in the case of male students ($t = 14.24, p < 0.001$) as compared with female students ($t = 3.89, p < 0.001$). Fan effect was evident in the interaction, after point of intersection, boys were scoring...
Table 5: Hierarchical multiple regression for moderating role of gender for self-determination related needs (autonomy, competence, relatedness) in predicting self-regulated learning (N = 356).

<table>
<thead>
<tr>
<th></th>
<th>Self-regulated Learning</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$R^2$</td>
<td>$\Delta R^2$</td>
</tr>
<tr>
<td><strong>Constant</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age (control variable)</td>
<td>.67*</td>
<td>.12</td>
</tr>
<tr>
<td>Gender (moderator)</td>
<td>-2.02</td>
<td>-4.25</td>
</tr>
<tr>
<td>Autonomy (IV)</td>
<td>0.98**</td>
<td>0.81</td>
</tr>
<tr>
<td>Autonomy × Gender</td>
<td>0.45</td>
<td>0.04</td>
</tr>
<tr>
<td><strong>Constant</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age (control variable)</td>
<td>0.44</td>
<td>-0.11</td>
</tr>
<tr>
<td>Gender (moderator)</td>
<td>-3.11*</td>
<td>-5.32</td>
</tr>
<tr>
<td>Competence (IV)</td>
<td>1.21**</td>
<td>1.02</td>
</tr>
<tr>
<td>Competence × Gender</td>
<td>0.44</td>
<td>0.05</td>
</tr>
<tr>
<td><strong>Constant</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age (control variable)</td>
<td>0.77*</td>
<td>0.16</td>
</tr>
<tr>
<td>Gender (moderator)</td>
<td>-2.40</td>
<td>-4.87</td>
</tr>
<tr>
<td>Relatedness (IV)</td>
<td>0.77**</td>
<td>0.60</td>
</tr>
<tr>
<td>Relatedness × Gender</td>
<td>0.31</td>
<td>0.03</td>
</tr>
</tbody>
</table>

Note. $\beta$ = Standardized regression coefficient; CI = Confidence interval
*p < 0.05. **p < 0.01. ***p < 0.001.

Figure 2: Moderated effect of gender between autonomy and self-regulated learning.

high on self-regulated learning than girls at a given point of competence.

Modegraph of Figure 4 shows that gender had a significant interaction effect with relatedness in predicting self-regulated learning. At the point of low level of social relatedness, female students already had high level of self-regulated learning as compared with male students. As social relatedness increased, self-regulated learning increased in both male and female students, but this increase was more pronounced in the case of male students as shown by slope ($t = 10.29, p < 0.001$) of the Modegraph, which was sharper in the case of male students as compared to female students ($t = 2.57, p < 0.01$). Fan effect was evident in the interaction, after point of intersection,
boys were scoring high on self-regulated learning than girls at a given point of relatedness.

**DISCUSSION**

The present study primarily aimed at the application of self-determination theory by assuming that academic internal locus of control enhances role of basic needs (autonomy, competence and relatedness) in self-regulating learning among university students. Recent studies have shown significant gender differences; therefore, moderating role of gender for these needs in predicting self-regulated learning was also explored. The alpha coefficient for all measure were satisfactory, however, it was a bit weak for Autonomy, Competence, and Relatedness. It may be because that measure was not indigenously developed and students may not be easily relating these needs in their academic setting. Pearson Product Movement correlation was conducted to study the relationship among study variables. All the three hypotheses related to relationship of study variables were confirmed. That is
external locus of control was negatively related to self-regulated learning and needs (autonomy, competence and strong for autonomy and competence than relatedness; however, it was significant as well. Relatedness was considered in the present study, while previously it was ignored in predicting self-regulated learning. Significant findings showed that relatedness is important in learning for collectivistic culture like Pakistan.

These results are in line with the previous studies (Sierens et al., 2009; Vansteenkiste et al., 2012; Longo et al., 2016; Vansteenkiste, and Soenens, 2013; Wood, 2016). However, seeds related to self-determination that is autonomy, competence including relatedness support are essential in educational domain. According to self-determination theory, satisfaction of these needs endorse self-regulated learning by development of students’ inner motivation and enhancing interest (Ryan and Deci, 2002). University students are more autonomous because of greater support from teachers and parents in exploring new things, and making more social relationships to gather information as compared with college students (Vansteenkiste and Soenens, 2013). However, their self-regulated learning becomes influenced by satisfactory need of autonomy and relatedness.

The results of mediation analysis of this study showed that academic locus of control is significant partial mediator for autonomy, competence, and relatedness in predicting self-regulated learning. Baiocco et al. (2009), Libert et al. (2007), West et al. (2009) and Yurtsever (2006) showed that there was negative relationship between external locus of control and self-regulated learning, and positive and significant relationship between internal locus of control and self-regulated learning. Students’ external attributions (failure due to other’s power) toward their outcomes of behaviors make them less motivated and less interested toward learning, where as internal credit (failure due to lack of effort) make them motivated and help them to put more effort in learning themselves (Ryan et al., 1990).

Reeve et al. (2003) showed that there was negative relationship between self-determination (basic needs satisfaction) and external locus of control and positive relationship between self-determination (basic needs satisfaction) and internal locus of control. Researchers showed that self-determination predict the internal locus of control (Reeve et al., 2003). Furthermore, students feel more confident toward their capabilities and more likely to have an internal perceived locus of causality when they have choices to explore new material (Ryan and Connell, 1988).

These mediation results are supported by previous findings (Deci and Ryan, 2000; Ryan and Deci, 2002; Reeve et al., 2003). Ryan and Connell (1989) claim that students who behave according to their preferences and carry out task on the basis of their desires tend to have internal locus of control. So, students who credit their success and failures to their efforts are more likely to engage in self-regulated relatedness), while self-regulated learning was significantly positively related with needs. Correlation coefficients were learning (Deci and Moller, 2005; Schunk and Pajares, 2009).

In the present study, academic locus of control did not appear as full mediator. This means that self-determination needs maintain their direct effect too in self-regulated learning. Academic locus of control plays a more important role in competence followed by relatedness as a mediator as compared with autonomy. This shows that academic locus of control plays much role in terms of competence in effecting self-regulated learning. Also, in collectivistic culture, it plays significant role with relatedness (social need) in predicting self-regulated learning.

In general, gender had nonsignificant role in self-regulated learning in moderation results as presented by its main effect, however significant interaction effect showed that as male students are more autonomous, competent, and have more social relatedness, their self-regulated learning increased at a pronounced rate than female students. The reason may be that gender differences in cognitive development have been found. Self-determination in expressing feelings, ideas, point of views, use of abilities in making decisions, and self-determination toward spare time are high in male adolescence than female adolescence (Field, 2005). On the other hand, boys also receive more encouragement and support to do their best (Rowell, 1974: 131). Moreover, in Pakistani culture, male students are more allowed to make decisions by their own choices (Munir, 2016). This findings show that if self-determination needs are satisfied, male students may outperform in self-regulated learning and their academic achievement may be improved as compared with female students. This may be more pronounced if their need for competence is satisfied as compared with other. Nevertheless, relatedness also showed its significant role in connection with gender in effecting self-regulated learning.

Some studies indirectly examined the satisfaction of one or two psychological needs in the education domain, especially focusing on perceptions of autonomy and competence (Cox et al., 2008; Laurin and Nicolas, 2009) and relatedness was excluded. The present study addressed this gap by focusing on all three needs (autonomy, competence and relatedness) together in academic domain. Findings have shown that in Pakistani culture, social relatedness affects self-regulated learning among university especially male students. The reason behind this may be if male students are given more opportunities to develop social relationships in Pakistan, this will positively affects their functioning (Munir, 2016).

CONCLUSION

Previous research has explained the relationship between self-determination and locus of control as well as relationship between locus of control and self-regulated
learning, but the mediating role of locus of control for self-determination need in predicting self-regulated learning is the significant contribution of the present study. In addition, relatedness was found to be significant predictor of self-regulated learning, which was ignored in previous studies. The findings show that by promoting self-determination related needs, internal locus of control increases that enhance the self-regulated learning among Pakistani university. If these needs are satisfied, academic functioning and their approach to learning may be improved; however, it will have much better effect for boys than girls.

LIMITATIONS AND SUGGESTIONS

There are also some limitations of this study and some suggestions for future studies to improve, continue and develop further information in understanding the topic of self-regulated learning. By using convenient sampling techniques, participants of the study were selected from different departments of Quaid-e-Azam University. Because of this sampling technique, most of the samples of this study belong to middle socio-economic status. So, the findings of the study would not be generalized to all level of socio-economic status across Pakistan. For better generalization of results, data should be collected from large number of participants from different universities and equal number of participants should form different level of socio-economic status. The correlational method used in this study could not provide cause-and-effect relationship between study variables and as such, the prediction values of the results can be affected. Because of the use of self-report measure, the chances of bias responses are high, as socially acceptable style. Therefore, it is suggested to future researchers to use longitudinal method to explore the factors that contribute to self-regulated learning among university students. The present study uses only two mini theory of self-determination theory and as such, many other factors that contribute to self-regulated learning, for example, self-concept, self-esteem, life satisfaction and how environmental factors enhance self-determination related needs were ignored. Therefore, it is suggested to future researchers to use other mini-theory such as Organismic integration theory that concerns different dimensions of external motivation with their factors, valuable effects and their outcomes. This theory explains the types of self-regulation and degree of motivation. OIT is concerned with how social environment and interaction affect the motivation level, belief system and self-determination level and what type of factors enhance one’s autonomy. Organismic integration theory explains the degree of self-determination from non-self-determined to fully self-determined. OIT predominantly point out that one’s internalization is affected by relatedness and autonomy. Therefore, teachers should be trained to promote these needs in class among all students without discriminating age, gender and educational level.

Implications

The present study illustrated comprehensible connection between self-determination related needs and academic locus of control in students’ learning and achievement which reflects application of self-determination theory in our university settings. The practical implications of this study for educational purpose and results recommended that self-determination related needs and academic locus of control have important role in self-regulated learning and students’ academic achievement. Hence, these must be promoted in students to achieve better results as self-regulated learning leads to better GPA, so better future. Moreover, this study also supports the earlier literature on self-regulated learning and academic achievement. The present study has significant theoretical implications and suggests strength of self-determination theory in Pakistan culture. Therefore, promoting autonomy, relatedness and competence skills will also lead to better SRL and GPA. This study can help teachers/educators to plan interventions and programs that enhance the self-regulated learning and academic achievement. Another practical implication of this study is that teacher and parents support and promote self-regulated learning among students. Therefore, parents and teachers’ role needs to be enhanced in promoting university students’ skills to have better outcomes. The results of this research will provide helpful information for promoting the student’s self-regulated learning at educational institutions of Pakistan. Satisfaction of needs, LOC and high SRL in male students were found. As such, there is need to promote autonomy support for girls and girls LOC.

REFERENCES


